UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,838	11/29/2004	Shmuel A. Ben-Sasson	24348-501 NATL	6386

30623 7590 03/28/2008

MINTZ, LEVIN, COHN, FERRIS, GLOVSKY
AND POPEO, P.C.
ONE FINANCIAL CENTER
BOSTON, MA 02111

EXAMINER	
GUDIBANDE, SATYANARAYAN R	
ART UNIT	PAPER NUMBER
1654	
MAIL DATE	DELIVERY MODE
03/28/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/501,838	BEN-SASSON ET AL.	
	Examiner	Art Unit	
	SATYANARAYANA R. GUDIBANDE	1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *92-94,97-100,103,104 and 107* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *92-94,97-100,103 and 107* is/are rejected.

7)☒ Claim(s) *104* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of group XV (claims 92-107) and election of SEQ ID NO: 24 as the peptide, election of insulin as the effector and an ionic detergent as species in the reply filed on 1/22/08 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/30/07 has been entered.

Applicant's amendment to claims in the response filed on 1/22/08 has been acknowledged.

Claims 92-94, 97-100, 103, 104 and 107 are pending.

Claims 92-94, 97-100, 103, 104 and 107 are examined on the merit.

Any objections and rejections made in the previous office action dated 10/30/06 and not specifically mentioned here are considered withdrawn.

A search for the SEQ ID NO: 24 indicated that it is not free of art. However, insulin coupled or fused to the SEQ ID NO: 24 was found to be free of art.

Allowable Subject Matter

Claim 94, 97, 103, 104 and 107 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Withdrawn Rejections

Claim Rejections - 35 USC § 102

Applicant's arguments and amendment to claims see 2-4, filed 1/22/08, with respect to 35 USC 102(b) rejection have been fully considered and are persuasive. The rejection of claims under 35 USC 102(b) has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of election/restriction and amendment to claims.

Claim Rejections - 35 USC § 103

Applicant's arguments and amendment to claims see 2-4, filed 1/22/08, with respect to 35 USC 103 rejection have been fully considered and are persuasive. The rejection of claims under 35 USC 103 has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of election/restriction and amendment to claims.

Double Patenting

Applicant's arguments and amendment to claims see 2-4, filed 1/22/08, with respect to double patenting rejection have been fully considered and are persuasive. The rejection of claims under double patenting has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of election/restriction and amendment to claims.

New grounds of rejection

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 92, 93 and 100 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims as recited claim a penetrating module consisting of an amino acid sequence selected from the group consisting of: SEQ ID NO: 24 and; at least 12 contiguous amino acids of any of SEQ ID NO: 24 wherein the effector is a polypeptide, the penetrating module is encoded

by a chimeric gene sequence. The claim also recites that the penetrating peptide is capable of translocating the effector across a biological barrier.

The MPEP clearly states that the purpose of the written description is to ensure that the inventor had possession of invention as of the filing date of the application, of the subject matter later claimed by him. An applicant shows possession of the claimed invention by describing the claimed invention with all of its limitations using such descriptive means as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir.1997). The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the application. These include, "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed invention is sufficient" MPEP 2163.

In the instant invention, applicants are claiming a penetrating module that consists of a penetrating peptide SEQ ID NO: 24 or at least 12 contiguous amino acids of any of SEQ ID NO: 24 fused or coupled to an effector molecule wherein the effector molecule is a peptide. The claim as recited implies that the invention encompasses any and all peptide or protein that comprises of SEQ ID NO: 24 or at least 12 contiguous amino acids of any of SEQ ID NO: 24. Because, the claim as recited do not provide any structural features associated such as to the size and amino

acid composition of the effector molecule that is a peptide. Even if we consider that the effector is polypeptide with a 50 amino acid residues, the number of possible penetrating molecules only with the SEQ ID NO: 24 would be 50^{20} molecules taking into account only the naturally occurring 20 amino acids. This is a very large number and applicants are in possession of this large number of penetrating molecules wherein the module consists of SEQ ID NO: 24. The claim as recited does not provide function associated with the structure of any of the effector polypeptide. The claim as recited also does not provide insight into the nature of coupling or fusion of the effector with the penetrating peptide whether it is attached to the N-terminal of the effector or C-terminal of the effector or the penetrating peptide is embedded in the middle of the effector peptide. The MPEP does state that for the generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus (MPEP 2163). If the genus has a substantial variance as in this case with the variability in the amino acid sequence, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP 2163. Although, the MPEP does not define what constitute a sufficient number of representatives, the Courts have indicated what do not constitute a representative number species to adequately describe a broad generic. In Gostelli, the Court determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. In re Gostelli, 872 F.2d at 1012, 10 USPQ2d at 1618. The specification provides examples of only few effector molecules, for e.g., a complement inhibitory protein, PA antigen of anthrax, heparin and linearized insulin receptor

Therefore, the claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 92, 93 and 99 rejected under 35 U.S.C. 102(b) as being anticipated by US 5,336,595 issued to Strader.

In the instant application, applicants claim a penetrating module consisting of an amino acid sequence selected from the group consisting of: SEQ ID NO: 24 and; at least 12 contiguous amino acids of any of SEQ ID NO: 24 wherein the effector is a polypeptide, the penetrating module is encoded by a chimeric gene sequence. The claim also recites that the penetrating peptide is capable of translocating the effector across a biological barrier and the penetrating module is encoded by a chimeric gene sequence.

The reference of Strader discloses the instant penetrating polypeptide between amino acid position 68 and 90 of (SEQ ID NO: 26 of the cited reference, column 23) that corresponds to SEQ ID NO: 24 of the instant invention. The polypeptide that flanks the position 68 and 90 in the cited reference is treated as the effector molecule (bioactive peptide) of the instant peptide. The fusion peptide (SEQ ID NO: 26 of the cited reference) is a human neurokinin-1 receptor.

The SEQ ID NO: 27 correspond to the chimeric gene sequence of the SEQ ID NO: 26 of the cited reference. Since the reference discloses the penetrating molecule consisting of SEQ ID NO: 24 of the instant invention with an effector poly peptide coupled to it, it is inherent that the resultant chimeric molecule is capable of translocating the effector peptide across the biological barrier. This meets the limitations of claims 92 and 93. The reference also teaches that the invention of Strader concerns a pharmaceutical composition for inhibiting the binding of subtance P to celllar human neurokinin-1receptor comprising an effective amount of neurokinin-1 receptor short form(column 2, lines 45-49). Hence, the claims 92, 93 and 99 are anticipated by the cited reference of Strader.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 92, 93, 94, 99, 100, 103 and 107 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 12, 20 and 32 of U.S. Patent No. 7,115,707 in view of Strader (US5336595).

Although the conflicting claims are not identical, they are not patentably distinct from each other because, Claims 92, 93 and 94 of the instant application drawn to a penetrating module consisting of peptide SEQ ID NO: 24 coupled or fused to an effector, wherein the peptide is capable of translocating effector across a biological barrier reads on the claim 1, 12 and 32 of the US patent 7,115,707 that are drawn to SEQ ID NO: 24 for translocating an effector molecule. Note that clam 12 of the US patent specifically claims the presence of insulin. Claims 99 of the instant application drawn to pharmaceutical composition reads on claim 2 of the US patent 7,115,707 drawn to a pharmaceutical composition. Claims 100 and 103 drawn to a pharmaceutical composition comprising an ionic detergent reads on claim 20 of US patent 7,115,707 drawn to surface active agent bile acid. Claims 107 of the instant invention drawn to a kit for treating a disease reads on claim 31 of US patent 7,115,707 drawn to a kit for treating diabetes. The difference between the claimed invention and the claims of the US patent is that the US patent does not specifically claim fusion or coupling of pentrating peptide with the effector.

It is known in the art that penetrating peptides can be coupled to active agents. For example, US patent 5,336,595 issued to Strader discloses a peptide similar to the instant polypeptide SEQ ID NO: 24 coupled with an effector as the human neurokinin receptor peptide (SEQ ID NO: 26 of Strader). It would have been obvious to couple or fuse the penetrating peptide to the active agent to deliver the effector molecule to the desired site.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satyanarayana R. Gudibande whose telephone number is 571-272-8146. The examiner can normally be reached on M-F 8-4.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Satyanarayana R Gudibande/

Examiner, Art Unit 1654

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anish Gupta/
Primary Examiner, Art Unit 1654